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Author(s): S Marko

Principal author signature:

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Approved by: F Beranek

Approver's position: Manager, Environmental, Safety, and Health

Approver signature:

River Protection Project
Waste Treatment Plant
3000 George Washington Way
Richland, WA 99352
United States of America
Tel: 509 371 3500
Fax: 509 371 3504

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# Acronyms and Abbreviations

| | |
|---|---|
| BBSP | behavior-based safety program |
| CFR | Code of Federal Regulations |
| DOE | US Department of Energy |
| ES&H | environmental, safety, and health |
| HWP | hazardous work permit |
| JHA | job hazard analysis |
| NIOSH | National Institute of Occupational Safety and Health |
| OSHA | Occupational Safety and Health Administration |
| PPE | personal protective equipment |
| S&HR | safety and health representative |
| STARRT | safety task analysis risk reduction talk |
| WTP | River Protection Project-Waste Treatment Plant |

# 1 Introduction

## 1.1 Background

Approximately 55 million US gallons of highly radioactive wastes are stored in 177 underground tanks located at the Hanford Site in Washington state, including 149 older single-shell tanks and 28 double-shell tanks. That waste, which was derived from production of plutonium for the nation's nuclear defense program, has been accumulating at Hanford since 1943, and poses a serious safety concern to the public and to the environment. Since most of the single-shell tanks have exceeded their design life, that risk is growing. Sixty-seven of the single-shell tanks are known or suspected to have leaked, and several additional tanks are being investigated for potential leaks. With the passage of time, even the newer, safer double-shell tanks are approaching the end of their design lives.

The lasting solution to this problem is to remove the waste from the tanks, treat it, and immobilize it as an inert waste form. The US Department of Energy (DOE), the US Environmental Protection Agency, and the Washington State Department of Ecology have entered into an enforceable compliance agreement, the Tri-Party Agreement (Ecology and others 1989), setting out milestones for cleaning up the tank waste. DOE, state regulatory agencies, and stakeholders view the tank waste cleanup as one of their top priorities.

The River Protection Project Waste Treatment Plant (WTP) will be designed, constructed, commissioned, and operated to safely convert the tank waste into a stable form.

## 1.2 Purpose of the Nonradiological Worker Safety and Health Plan

This plan will cover worker safety for all employees, subcontractors, and visitors from the beginning of limited construction through cold startup. The prevention of incidents, accidents, and injuries during construction of the WTP is of paramount concern to the project. All necessary planning and actions will be taken to establish, maintain, and monitor safe and healthy working conditions and practices, in accordance with contract requirements. These conditions and practices will be accomplished by:

- Providing a basic nonradiological worker safety and health plan that assists the project and its subcontractors to recognize, evaluate, and control hazardous activities and conditions within their areas of responsibility
- Establishing guidelines and assigning specific responsibilities for the implementation and administration of the safety and health plan
- Establishing job site rules that apply to all individuals who enter the site
- Implementing hazard recognition and control methods to ensure that safety is incorporated into all work operations
- Recognizing safe performance by workers at all levels

The safety and health plan establishes a program to promote safety and health practices, to maintain a safe working environment for all project employees, and to reaffirm the employees' basic responsibilities for their actions as assigned under the provisions of the *Occupational Safety and Health Act* of 1970 (OSHA 1970) and other applicable standards. This safety and health plan is not meant as a substitute for any federal, state or local regulations, but is meant to enhance applicable regulations. The project will comply with contractual requirements, including RL/REG-2000-04 and all applicable parts of Part 29 of

the *Code of Federal Regulations* (CFR). The implementation of these obligations by all project team members will effectively help prevent accidents.

It is expected that every employee on the project will work without being injured, and that all team members leave the site with the same level of health and physical well being with which they arrived. All team members are responsible for each other's well being on each site, and no job is worth performing in an unsafe manner.

The provisions of the safety and health plan apply to all employees, visitors, and subcontractors at the construction site. Subcontractors and their lower-tier subcontractors are held accountable to this plan in terms of the provisions of their contracts. Subcontractors are required to use the safety and health policies and requirements outlined in this plan as the basis for developing and implementing their own safety and health plans.

The project manager or the construction manager, with the concurrence of the environmental, safety, and health (ES&H) management, reserves the right to modify the plan during the course of the project, as required, to incorporate new or revised regulations or standards.

The project will administer and enforce the safety and health plan. The project team will regularly audit the program and that of each of its subcontractors for adherence to this plan.

The project execution of this safety and health plan will be progressive, proactive, and dynamic. The project will evaluate and implement measures to improve the plan. Project employees and subcontractors are expected to report expected problems for appropriate assessment and controls, rather than react only after an accident. Subcontractors will be screened prior to the award of their contracts, to select companies that have a proactive safety performance record.

The following actions, concepts, and commitments contribute significantly to the long-standing success of ES&H protection programs, and therefore form part of this plan:

- Visible and meaningful management involvement in the safety process, which emanates from the project manager and encompasses the entire organization, including each manager, supervisor, and employee. The project's zero accident philosophy has demonstrated that the health and welfare of all employees is a top priority.
- Environmental, safety, and health issues will be the foremost considerations in any activity. No work is so important as to justify jeopardizing the health or wellbeing of personnel, negatively impact the environment, or compromise the good reputation of the project or its customers.
- A commitment to prevention-based activities, which begin with pre-project planning and continue with safety training and meetings, hazard elimination, and recognition of safe work performed.
- A philosophy that safety must be owned by everyone.

## 1.3 Planning

Safety will be planned into every phase and aspect of the work. The safety requirements of the safety and health plan will be incorporated into all subcontracts and will be reviewed at all pre-bid meetings to ensure that advanced planning and commercial considerations for compliance are undertaken by subcontractors. Every subcontractor will be required to commit to and submit a written safety and health plan for review and acceptance before commencing work.

## 1.4 Compliance

Compliance with the requirements of applicable federal, state, and local laws will be accomplished through a combination of written programs, employee training, workplace monitoring, and system enforcement. Continued and regular inspections by supervisors and safety personnel, as well as the culture of ownership and total involvement in the safety program, will produce an atmosphere of voluntary compliance. However, disciplinary action will be taken when necessary, when project safety requirements are violated.

## 1.5 Accident Prevention Policy

The project is dedicated to the zero accident philosophy that is based on the concept that all accidents are preventable and that there is no acceptable accident rate other than zero. Every employee has the responsibility to identify unsafe conditions and the right to report them without fear of reprisal from management. Once a manager or supervisor has been notified of a safety concern, they are responsible for assessing the situation and informing the concerned employee as to the appropriate corrective measures for mitigating the problem. If the situation is not considered a safety risk or violation of this plan, the manager is obligated to inform the employee accordingly. In all cases, prompt feedback is essential.

Each manager shall establish proactive goals for safety performance in accordance with the zero accident philosophy. These metrics shall include positive factors such as safety meeting attendance, job hazard analyses (JHAs) completed, and employee safety suggestions and recommendations completed or closed. The targets of other performance metrics, including incident rates, near-misses, and lost workday case rate, shall be set at zero. The performance evaluation of each managerial division will include comparisons of these metrics with the targets. Since an increasing number of near-misses are typically indicative of an imminent injury or serious accident, the project will actively track and follow-up on near-misses to avoid further incidents and promote the accident prevention policy. Performance metrics shall be posted in the work area.

## 1.6 Zero Accident Criteria

The zero accident philosophy is essential to maintaining a world-class safety and health program. Effective implementation requires enthusiastic adoption of the following concepts:

- Protection of site personnel, visitors, and the public is the first priority
- Activities are planned prior to execution, to optimize the protection of the participants
- Personnel at all levels are involved in the safety and health program and take responsibility for their actions
- Unsafe practices or conditions are not tolerated
- Construction management is responsible for effectively implementing the safety and health program, for ensuring total compliance with safety and health requirements, and for consistently enforcing the regulations
- Line management coaches employees in the safety and health philosophy
- Employees are trained and qualified commensurate with their responsibilities
- Resources are adequate to implement worker protection programs
- Accidents and near-misses are immediately reported, investigated, and resolved by timely corrective actions

### 1.7 Zero Accident Process

The zero accident concept is based on the following three key elements, which are considered essential to achieving and sustaining zero accidents performance:

- Management commitment and leadership
- Employee commitment and participation
- A prevention-based and proactive safety process

These key elements are described further in the following sections. They will be the foundation for the safety systems incorporated in this safety and health plan and implemented on the WTP project.

#### 1.7.1 Management Commitment and Leadership

Project management will lead by example, actively demonstrating the behavior expected from its employees, subcontractors, and sub-tier subcontractors.

#### 1.7.2 Employee Commitment and Participation

Establishing personal responsibility and accountability ensures correct safe work practices. The project, through its employees and subcontractors, will solicit and encourage employee participation and commitment to the safety improvement process.

#### 1.7.3 Prevention-Based and Proactive Safety Process

The proactive safety process will include sufficient planning and implementation of work controls into every phase and aspect of the work where hazards may exist. Standardized work plans, procedures, JHAs, and hazardous work permits (HWPs), as applicable, will be used to implement the provisions of this safety and health plan and to ensure that applicable ES&H requirements are translated into work practices.

The prevention-based process uses the "communicate to educate" philosophy and behavior-modification as a basis to foster improvement. The premise is that people will make the right decision if they fully understand the consequences of their actions. This is achieved by:

- Educating the team members about the importance, benefit, and expectation of good performance
- Providing specialized training
- Establishing, implementing, and continuously improving the safety and health plan

# 2 Responsibilities and Accountability

### 2.1 General

Project management is responsible for providing employees with a safe and healthy working environment during all phases of construction. The project manager has the ultimate responsibility for health and safety at the WTP. The project manager defines and authorizes the appropriate managers' responsibilities for health and safety during construction and commissioning. The responsibility to support the program

applies at all levels of the project. The responsibilities, as defined by the project manager, flow down to the line managers, supervisors, workers, and subcontractors. The assignment of health and safety responsibilities from the project manager through line management does not lessen the responsibilities of management, but includes each manager in the chain of responsibilities. Managers and supervisors are responsible for effectively communicating the importance of safety and health to all personnel under their jurisdiction.

Project management is committed to providing the necessary resources to maintain high levels of worker protection, and to ensuring that the construction workforce knows about and understands management's objectives and programs for safety and health.

Project management is responsible for assisting in planning and executing appropriate emergency responses that will protect employees, visitors, the public, and the environment in the event of a site emergency or a natural disaster.

An organization chart will be maintained in the project office and a copy will be posted in the project field office. This chart will list the project management and the major subcontractors. Where possible, names will be placed next to the titles of the key personnel.

Figure 1 illustrates how the requirements of this safety and health plan apply to the different groups at the construction site and how those groups interact. Solid lines denote direct involvement and dashed lines indicate indirect involvement. For example, all employees are directed by either construction management or their subcontractor employer.

## 2.2 Construction Management

Construction management will be responsible for providing the necessary resources to create a safe and healthy construction site for employees, visitors, and the public. All levels of management will endeavor to ensure that safety and health receives top priority, and will be committed to ensuring that the construction workforce is aware of and understands the project's safety and health objectives and programs. Construction management will also hold subcontractors accountable to the same requirements as the WTP.

### 2.2.1 Construction Manager

The Construction Manager will ensure that safety planning is executed and that work is conducted in accordance with all applicable occupational health and safety standards. The Construction Manager must demonstrate strong leadership and overall commitment to safety throughout all phases of the project, and administer an effective, ongoing safety program. The Construction Manager's duties will include:

- Ensuring that resources are allocated to implement the safety and health plan
- Holding all personnel accountable for a safe and healthy work environment
- Reporting accidents as required by procedures

### 2.2.2 Line Managers

Line managers, under the direction of the Construction Manager, will be responsible for effectively communicating the importance of safety and health to personnel under their jurisdiction, and will be held accountable for ensuring that the safety and health plan is implemented according to project requirements.

Each line manager is responsible and accountable for the day-to-day work that can directly affect the safety and health program, and will be expected to support the program as follows:

- Set a positive safety example for employees
- Empower all workers to participate actively in health and safety programs, to ensure their own and others' wellbeing
- Challenge perceptions that downplay the importance of safety and health
- Communicate safety policy and rules to employees, subcontractors, and lower-tier subcontractors, and enforce compliance when necessary
- Review each job and task under their jurisdiction for safety and health hazards, and ensure that prescribed hazard controls are in place
- Ensure that weekly construction safety meetings are conducted at the construction site
- Conduct or assist in incident and accident investigations to determine causative factors and corrective actions, and prepare required reports with the assistance of the ES&H department
- Actively promote the zero accident concept
- Implement immediate action to correct reported or observed substandard safety and health conditions
- Conduct daily inspections of their work areas and take necessary corrective actions to eliminate any unsafe practices and conditions
- Help implement the site emergency management plan
- Enforce work rules, written programs, procedures, and instructions
- Evaluate the safety performance of assigned employees and subcontractors, and report findings to the appropriate manager

### 2.2.3 Employees

Employees will be responsible and accountable for ensuring their own safety and contributing to the safety of others by:

- Working in a safe manner at all times and following project procedures, programs, and site safety rules
- Proactively working to implement this safety and health plan, applicable regulations, and the zero accidents concept
- Learning and abiding by those ES&H rules, policies, and procedures that apply to their work, and reporting substandard practices or conditions to their supervisor
- Ensuring that unsafe acts and conditions are corrected, which may include exercising their stop work authority (see section 3.3 below)
- Participating in the safety task analysis risk reduction talk (STARRT) procedure (section 4.3 below) to obtain relevant information about the hazards of a particular job task, chemical, or work environment before beginning work
- Constantly remaining alert for job site and task-related hazards

## 2.3 Environmental, Safety, and Health Management

WTP ES&H management programs will include:

- Periodic field assessments of subcontractors' performance relative to compliance with this nonradiological safety and health program
- Oversight of all construction-related ES&H activities
- Employee and subcontractor new hire safety orientation
- Safety management training
- Specialized ES&H training
- Employee and subcontractor first aid services and medical case management
- Accident and incident investigation and data analysis
- Oversight of the drug and alcohol program
- Health management and industrial hygiene services
- Subcontractor selection based on review of qualifications and safety performance
- Audits

This approach will facilitate a consistent, integrated approach to safety management and the zero accident concept. It will provide a focal point for coordinating employee and subcontractor safety and health, medical provider services, and ES&H training. The consolidation of these services within the ES&H organization will reduce the time and cost involved in providing them or accessing offsite services.

### 2.3.1 Industrial Safety and Health Manager

The Industrial Health and Safety (IS&H) Manager will work directly with the Construction Manager for overall safety and health coordination activities, and will advise the Construction Manager on the implementation of safety and health processes. They will work closely to ensure that the systems and structures, provided in the safety and health plan and the subcontractors' safety and health plans, consistently meet the needs of the project.

The IS&H Manager will support the Construction Manager, and report to corporate ES&H management. Some of the duties of the IS&H Manager will be:

- Ensuring that the elements of the safety and health plan are being followed
- Regularly monitoring and auditing the safety and health provisions of the contract in relation to actual site performance
- Resolving any safety and health-related conflicts between the safety and health representative (S&HR) and field managers or subcontractors
- Conducting pre-award assessments of subcontractors regarding their safety and health records and capabilities, including reviewing and approving subcontractors' safety programs
- Overseeing construction employees' and subcontractors' safety performance
- Providing metrics for safety performance, including, not limited to, the completeness of STARRT cards issued, the number of safety observations or suggestions completed, and the number of assessments completed

### 2.3.2 Safety and Health Representatives

The S&HRs (such as safety engineers and industrial hygienists) will ensure that the elements of the safety and health plan are being followed on a day-to-day basis. Their responsibilities will be to:

- Monitor, survey, and assess construction employees' and subcontractors' job safety and health-related activities
- Inspect job sites for compliance with the provisions of this safety and health plan and applicable safety and health practices, regulations, permits, licenses, and approvals
- Review the subcontractors' IS&H documentation (plans, procedures, and so on), and evaluate their compliance with the requirements of these documents
- Verify employees' and subcontractors' safety and health training
- Review and sign off HWPs for construction activities
- Promote and actively participate in the zero accident process
- Conduct safety and health orientations or training to acquaint employees with work conditions and safe work practices
- Interpret safety and health requirements
- Provide subjects for the weekly construction safety meetings
- Document and maintain a record of audits, evaluations, and assessments
- Provide technical support for work control processes, including STARRT cards and JHAs, and maintain records of completed work control documents to assess the efficiency of processes
- Coach employees on the behavior-based safety program

### 2.3.3 Medical Staff

The project will have an onsite medical facility, staffed with qualified, licensed medical personnel to treat first aid cases and minor injuries, and to provide physicals, evaluations, or tests as required for such programs as respiratory protection and hearing conservation. Medical personnel will stabilize injured personnel who require additional treatment at an offsite emergency facility before an ambulance arrives. They will work closely with offsite medical personnel to:

- Determine when an employee can return to work
- Determine whether the employee can be placed on modified duty
- Monitor the progress of employees who are on modified duty or not at work due to injuries or illnesses
- Provide ongoing case management

### 2.3.4 Security

The site will be controlled by a security subcontractor, who will control access at the entry points. Workers approved for entry will be badged. Visitors will wait at the gate while security personnel contact the responsible person. Visitors will be escorted at all times and will be required to wear the appropriate safety equipment. All individuals entering the site will be required to sign in and out so that, during an emergency, management can account for everyone on the site. The security subcontractor will also serve as the point-of-contact with offsite emergency response personnel such as paramedics and fire department. Emergency procedures are described in the *Site Emergency Management Plan* (BNI 2001).

## 2.4 Engineering and Administration Personnel

Engineering and administration personnel will be responsible for ensuring their own safety and contributing to the safety of others by:

- Working in a safe manner at all times and following project procedures
- Proactively helping implement this plan, applicable regulations, and the zero accidents concept
- Learning and abiding by those ES&H rules and practices that apply to their work tasks, and reporting substandard practices or conditions to their supervisor
- Correcting unsafe acts and conditions within their area of responsibility, which may include exercising their stop work authority
- Constantly remaining alert for job site and task-related hazards

## 2.5 Subcontractors

All subcontractors will be required to abide by the safety and health requirements specified in their contracts. When a subcontractor is on site, they are overseen by an authorized representative from construction management. During assessment of a subcontractor's work, any deficiencies found or suggestions made will be reported to the authorized representative. However, this requirement does not preclude anyone from initiating the stop work process. If this should occur, the authorized representative must be contacted immediately. The authorized representative will be advised of all documented assessments of the subcontractor.

Subcontractors will be solely responsible for implementing a safety and health plan that meets or exceeds the requirements of this plan, and for having their plan in place prior to mobilization. They will be responsible for ensuring that their lower-tier subcontractors adhere to these same standards. The WTP will not be responsible for implementing the subcontractors' plans, but will monitor the activities of the subcontractor and their lower-tier subcontractors to ensure they are in compliance with their plans and procedures. The following will be among the subcontractors' responsibilities:

- Provide a safe and healthy workplace for their employees, safe from known or suspected hazards, and safeguard the public and the environment from hazardous conditions that may occur as a result of their operations.
- Hold pre-mobilization meetings, weekly safety meetings, and other meetings required by the project in the interest of safety and health.
- Provide an ES&H representative dedicated solely to that position, who is interviewed by the WTP IS&H Manager or designee. Subcontractors' ES&H representatives are judged on work experience and education. This requirement for a dedicated ES&H representative may be waived by the IS&H Manager on a case-by-case basis.
- Share information regarding the specific hazards of particular work activities with their employees; identify unusual hazards to their employees as they develop during the work activities; and establish control measures to eliminate, isolate, or minimize employees' exposure to those hazards.
- Conduct and document regular inspections of their work areas, identify hazards or areas of ES&H noncompliance, and take the appropriate corrective action.
- Investigate all significant near-misses and incidents with the WTP team, if so requested.
- Ensure that work has been planned and that all key individuals are aware of the risks and the prescribed controls before initiating the work.

- Provide the leadership to improve all processes that achieve a safe and healthy workplace.
- Support the improvement of safety every day in every work activity.
- Set priorities that reinforce safe work activities and emphasize, communicate, and recognize measures to improve safety performance.
- Challenge the perceptions that downplay the importance of safety and health.
- Provide the WTP contractor with copies of all incident and accident investigations, statistical reports, workers' compensation reports, Occupational Safety and Health Administration (OSHA) 200 log, willful citations from OSHA/WISHA for previous three years, first aid logs, annual crane inspections, and other documents as requested.
- Implement an incentive program consistent with the WTP program.

The WTP will select subcontractors based on a number of criteria, with an emphasis on their past safety record as indicated by their recordable and lost work day incident rates. To qualify to bid, the construction subcontractors will be required to meet the following qualifications:

- An average experience modification rate of < 1.0, an OSHA recordable rate of < 3.2, and a lost workday case rate of < 3.0 for the previous three years
- No significant willful citations from OSHA or other regulatory organizations for the previous three years

Other criteria will be contained in a pre-bid questionnaire that all bidders will complete. In addition to submitting its experience modification rates, incident rates, and willful citations for the past three years, the subcontractor will answer questions pertaining to:

- Employee training
- Safety programs in place
- Who is involved in reviewing accident information

After the subcontractor has been selected, it will be contractually required to complete checklists on its safety program and submit these to WTP construction management for review. The WTP contractor will also audit the subcontractor and document the audits, to ensure the subcontractor is performing safely.

## 2.6 Conduct of Employees

The conduct of all employees will be specified in the job site work rules and regulations.

## 2.7 Accountability

All construction personnel, subcontractors, vendors, and visitors will be required to adhere to the program outlined in this safety and health plan. Project personnel will be held accountable for safety performance by line management. Subcontractors will be held accountable, by means of contractual mechanisms and oversight by the WTP contractor, and procedural compliance will be required as a condition of continued access to the construction sites and as a condition of employment.

### 2.8 Employee Concerns

The employee concerns program includes safety concerns, and as a part of its commitment to the zero accident philosophy, the project will respond to employees' concerns regarding work safety. The early identification and remediation of unsafe situations is expected to minimize the potential for accidents and injuries. All employee reports of unsafe work practices, acts, or conditions will be investigated and resolved immediately.

The progress of the investigation and correction of the finding will be tracked by an appropriate mechanism and reported in the weekly safety meetings. Any worker who believes that their right to report has been violated shall have recourse, as specified in the project's policy and in federal law, if the individual has brought the matter to the attention of the supervisor, upper management, the IS&H Manager, the ES&H manager, or labor relations. If the concern is not adequately addressed and resolved within the project team, the employee will have the right to contact the DOE.

Line management should be allowed the opportunity to correct the issue. The following concern resolution process is recommended:

1 An employee should first discuss the concern with a supervisor.

2 If the supervisor and the employee cannot reach agreement and resolve the concern, the employee should then address the concern to any onsite manager, who will endeavor to resolve the issue with the employee, ask for help from another manager who better understands the issue, or give a reason why the issue cannot be resolved to the employee's satisfaction.

3 If this step does not satisfy the employee, they may take the concern to the employee concerns program at 371-3888 or 1-800-392-2108. This organization is administered by the human resources department and is committed to resolving issues in a timely manner.

4 Represented employees may want to have their concerns or grievances addressed as specified by their collective bargaining agreement.

All employees will be encouraged to use the above steps to address concerns and every attempt is made to resolve these concerns in a timely manner. All employees will also have the right to call the DOE hot line at (800) 626-6376, or the phone number on the DOE poster on the employees' bulletin board.

Construction management cannot resolve an employee's concern if it is unaware of the issue. However, the employee concerns program can also be used as an independent, confidential method of reporting concerns related to safety, health, quality, security, or the environment.

# 3 Work Control

### 3.1 Hazard Identification

In accordance with the Integrated Environmental, Safety and Health Management System process, hazard identification shall be initiated at the planning phase of each task. This process will continue through execution as a combined effort of the S&HRs, line management, and the workers. At the work site, all employees on the job will be responsible for identifying hazards associated with their work. When hazards are identified, they will be evaluated according to section 3.4, Risk Assessment, below.

## 3.2 Hazard Prevention and Control

Hazard prevention and control will aim to eliminate hazards through design or planning, for example by using local exhaust ventilation, reviewing hazardous work permits, and using less toxic materials. The health and safety professionals will review project tasks as they are scheduled, to identify appropriate controls to conduct the task safely. Construction plans may be reviewed by the Construction Manager and ES&H staff members, for work process improvements and hazard mitigation. Where possible, they will make recommendations for cost-effective mitigation early in the planning process.

Where hazards cannot be eliminated, they will be controlled. The hazard control measures, in their preferred order of application, will be:

- **Engineered controls and redesign**: Substitution for less hazardous materials or equipment, ventilation, interlocks, and so on
- **Administrative controls**: Use of permits, authorizations, special procedures, and so on
- **Personal protective equipment (PPE):** Respirators, hard hats, gloves, safety shoes, and so on

## 3.3 Stop Work Authority

All employees will be responsible for adhering to safe work practices and for performing work in a safe, efficient manner, and will have the right to refuse to perform a task that they believe is unsafe. Along with this authority they will have the responsibility to take an active role in resolving safety issues. Employees who receive assignments that they do not understand have an obligation to request additional information and clarification before they start work. Furthermore, any employee will have the authority to stop work whenever:

- Existing or imminent dangers are identified
- Prescribed work procedure, safety devices, or training is deficient with regard to controlling hazards associated with the task
- An unsafe act or condition exists that the personnel present cannot correct safely

In all cases where there is any uncertainty as to whether an employee can safely correct an identified hazard, the employee will be expected to cease work and initiate a stop work order. After affected employees have been informed of the cause of the stop work and isolated from the hazard, the employee shall immediately notify their supervisor, a S&HR, or a member of project management that a stop work order has been issued. Construction management and ES&H personnel will assess the situation, evaluate remedies, take the necessary corrective action, and verify that the problem has been adequately resolved prior to lifting the stop work order.

## 3.4 Risk Assessment

To increase safety awareness and to reduce injury and accident potential, the project will require that all jobs, including routine or "skill of the craft" tasks, be subject to a level of safety control. The method of control will be the STARRT program, in terms of which the management and worker team identifies the work, evaluates the hazards, and then determines and implements the necessary controls. This program is further defined in section 4.3 of this plan.

If the risk associated with a task is deemed to be too high for a STARRT card to control the hazard adequately, the risk to workers will be determined by one or both of the following methods:

- **Job hazard analysis:** A JHA will be performed before work begins on jobs that are high risk, involve working with hazardous agents, involve unusual tasks or risks, or have frequently-reported near-misses. The findings of these JHAs will be used in planning and preparing the work, and could lead to additional control methods, such as training, different procedures, or the use of protective equipment. The JHA will be reviewed with the work crew during the STARRT card briefing.
- **Hazardous work permit:** The HWP is used to review and control tasks involving nonroutine work of higher levels of risk, which may require additional controls beyond a JHA. As necessary, the permit system can set duration, specify certain personnel training required to conduct the task, specify special or specific PPE, specify monitoring, define special techniques, and provide for the highest level of tracking and oversight of work execution.

Work crews will review the HWP or JHA, or both, complete the STARRT card, and sign in on the HWP roster. The HWP will be posted while the work is ongoing.

## 3.5 Work Documentation

The types of work documents and the level of detail provided will be commensurate with the complexities of the task and the potential hazards involved. Work documents can include installation drawings, procedures, STARRT cards, JHA, or HWP.

## 3.6 Request for Waiver or Deviation

Requests for deviations from the project ES&H plans will be submitted in writing to the ES&H manager, who will have sole authority to grant or refuse a written approval. The ES&H manager will coordinate and consult with appropriate individuals, approve or deny the request for deviation, and forward the result of the request to the project manager. Any incident that occurs related to work where a waiver or deviation has been granted must be formally investigated. Requests for deviations from regulatory requirements can be granted only by the DOE.

## 3.7 Safety Rule Enforcement

Prior to the start of construction work, job site rules will be determined, published, posted, and given to all employees, including subcontractors and their lower-tier subcontractors. Deliberate violation of the job site or safety rules and requirements may subject the violator to disciplinary action, up to and including dismissal.

## 3.8 Procurement Control

Anyone who originates a purchase requisition for equipment or services will be required to consider the potential risks resulting from the procurement. The S&HRs will review procurement documents involving hazardous materials and safety- and health-related services to evaluate the risks. Future procurements of the same items or services will not be subject to repeated review and approval but will require that the ES&H department be notified. In addition, any purchase requisitions for chemicals or hazardous materials will contain a requirement for the vendor to supply a material safety data sheet.

### 3.9 Competent Persons

Certain OSHA regulations require a "competent person" to inspect work processes such as, but not limited to, excavations, scaffolds, and cranes. A competent person is someone who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary or hazardous, and who has authorization to take prompt corrective measures.

The industrial safety management will determine who is qualified to be a competent person on the basis of previous experience, or will train individuals to serve in this capacity.

### 3.10 Cold Start-up Requirements

During design and prior to cold start-up, procedures will be developed for the safe operation of the facility. While the operating procedures are being developed, a hazards evaluation will be conducted to identify the hazards associated with the process, evaluate the likelihood of the hazards causing an incident, evaluate their associated consequences, and determine methods to control the hazards. Factors that will be evaluated include, but will not be limited to:

- Engineering and administrative controls
- Chemicals and materials used in the cold start-up phase
- Human factors
- The safety and health effects of system or control failures
- Compliance of construction and equipment with design specifications
- Maintenance and emergency procedures in place
- Completion of employee training

# 4 Worker Protection Programs

Safety at the project will be enhanced by implementing key safety program initiatives such as training, a behavior-based safety program (BBSP), a self-assessment program, a subcontractor selection and oversight program, and a safety leadership workshop program. Other programs which contribute significantly to worker safety and health include:

- Lockout and tagout of energized equipment
- Medical facilities
- Fall prevention and protection
- Emergency response
- Fire prevention

Worker protection programs that will be used at the project are summarized in the following sections.

### 4.1 Training Program

Training of site workers, subcontractors, vendors, and visitors is key to preventing accidents. Employees will receive adequate training for their work activities, and this will be documented. Each supervisor will

ensure that employees working in their area of responsibility have received all their required training. Section 5 below details the training programs.

## 4.2 Safety Meetings

Supervisors will be required to conduct weekly safety meetings with their respective work groups, including office workers. These meetings will contain safety and health educational and instructional information relating to the work currently in progress, and will be documented. The supervisor will prepare a report listing the attendees, the subject discussed, and any questions asked, and will submit this report to industrial safety. The supervisor will provide feedback on all comments and suggestions, and any comments or suggestions from the previous week's meeting will be discussed at the next weekly safety meeting. Special safety meetings will be held when the IS&H Manager or the ES&H manager determines that vital information needs to be given to the team as a whole.

The contract-authorized representative and the assigned safety and health representative will conduct weekly meetings with the subcontractor safety representatives. In these meetings, any accident data and near-miss analyses will be reviewed and the detailed causes and mitigation strategies discussed. All suggestions, comments, and specific training information associated with these meetings will be documented, and the comments resolved and retained.

## 4.3 Safety Task Analysis Risk Reduction Talk

STARRT is a program that uses employees to identify hazards associated with a work task, and determine controls. The task supervisor will brief the work crew before it begins each new task or after the working conditions have significantly changed. This briefing will encourage active participation by the work crew to address safety hazards, and identify methods to control the hazards and any special protective equipment required. This information will be entered onto the STARRT card and the work crew will sign the card.

If the task involves hazardous work and requires further hazard analysis, a risk assessment will be performed as described in section 3.4 of this plan. Each employee performing hazardous work will be provided with specialized training, if applicable, before performing their activity. Specialized training may include such topics as using respirators, working in confined spaces, handling hazardous waste, wearing fall protection, working with chemicals including chemicals regulated under OSHA's 29 CFR 1910 subpart Z, or any other training deemed necessary by the ES&H or training departments.

## 4.4 Behavior-Based Safety Program

The BBSP is designed to involve all personnel in the safety process, encouraging them to be proactive in identifying good work behaviors and eliminating at-risk behaviors, work practices, and conditions. Workers observe other workers and if unsafe acts, practices, or conditions are observed, they will discuss the problem and determine a cause for the at-risk behavior and a remedy. This process is a "no name, no blame" system that encourages the employee to change the behaviors that led to the unsafe practices. The observer's report will be used by the project to improve the ES&H program.

All site workers will receive an initial briefing on the BBSP. Further training will be given to all site and line managers as well as to the personnel composing the BBSP committee. This committee will form the core group to administer and champion the program, counsel and mentor the observers, and regularly train new observers. Observers will be chosen from all project groups and skills, and will receive training on how to conduct the observation and how to interact with fellow project personnel when discussing any unsafe acts or practices identified. New observers will be rotated into the program on a regular basis.

## 4.5 Self-Assessment Program

Self-assessment is a key factor in achieving a zero accident work environment. A self-assessment program, based on the principle of continuous improvement, will be established at the project site. Deficiencies found during the self-assessment process will be tracked until they are closed or resolved by an open item tracking system. Management and workers will participate in the self-assessment process.

Self-assessment begins with the individual worker taking responsibility to remain constantly alert for job site and task-related hazards. Before and during work activities, each worker will assess their work station and work task for specific hazards. Workers will consult with their immediate supervisors on hazards that have not been addressed. Line managers and supervisors will provide guidance to workers on how to conduct self-assessment evaluations of their work tasks and workstations.

Supervisors and managers shall conduct frequent job site walkthroughs to identify safety hazards. Good practices as well as deficiencies will be noted. Most deficiencies can be corrected immediately. Any safety issues that cannot be addressed immediately will be brought to the attention of management and placed in the open item tracking system. Every effort will be made to abate or mitigate the hazard as quickly as possible. Safety issues that are identified during supervisor and management walkthroughs but are not corrected immediately are reviewed at the project's plan of the day meeting or its equivalent. The findings of these walkthroughs and the status of the open item tracking system will be discussed during weekly safety meetings.

## 4.6 Safety Leadership Workshop Program

Safety leadership training will be given to those line supervisors, craft personnel, and any others that the construction management team deems to need this training. The workshop will be designed to instruct these individuals in the basic safety and health requirements of construction, and to provide them with the tools necessary to identify and correct potentially hazardous conditions within their areas of responsibility. Training topics include, but are not limited, to:

- The project's safety and health policy, responsibilities, and plans
- Supervisors' safety and health responsibilities
- The cost of accidents and the value of loss control
- JHA and hazard recognition and planning
- Safety education
- Cause and effect of loss
- Construction environmental requirements
- Environmental requirements
- Environmental compliance tools
- Right-to-know responsibilities
- Human relations and special problems and solutions
- Resources available to the supervisor

Follow-up meetings will be held as needed, and will be used to reinforce the initial training and provide further information to enable the supervisors to continue improving their safety performance.

## 4.7 Lessons Learned

Regular communications can provide critical information on issues and problems. Sharing lessons learned about programs, processes, equipment, and issues such as injuries or near-misses can provide the basic information that may prevent a repeat of a mishap.

Types of lessons learned to be collected will include:

- Findings from incident investigations
- Findings from self-assessments, independent evaluations, and audits
- Successes in a program, process, or equipment
- Definition and resolution of a particularly difficult safety or health issue
- Findings from near-misses

Lessons learned will be documented, retained in project document control, discussed at the next weekly safety meeting, and incorporated into the new employee site safety orientation (section 5.3). In this way, present and future employees will benefit from lessons learned.

## 4.8 Medical

Whenever 25 or more manual personnel are onsite, the project will have at least one qualified person at the onsite medical facility. The telephone number to the onsite medical facility, the local hospital, the local emergency medical service (ambulances), and fire protection services will be conspicuously posted. The medical facilities will be available to all site workers, subcontractor employees, and site visitors.

## 4.9 Construction Fire Prevention Plan

Management is committed to providing a high level of fire prevention and protection during the construction of the facility. A WTP fire prevention plan has been established to protect the public and workers from the consequences of hazardous events associated with fires, to protect the environment, to conserve property, and to ensure the continuity of operations. If a fire occurs, the WTP is committed to minimizing the consequences, including preserving facility safety functions.

To achieve the high degree of fire safety inherent in the primary objective, the WTP shall be constructed and operated to do the following:

- Prevent fire initiation by controlling, separating, and limiting the quantities of combustibles and sources of ignition
- Isolate combustible materials and limit the potential spread of fires by housekeeping in and around the construction site
- Enable fire suppression systems in buildings as soon as technically feasible
- Provide access and life safety escape routes for fire-fighting personnel in each fire area
- Provide emergency lighting and communications to facilitate safe egress
- Quickly communicate a fire's location, size, and other details to construction management so it can determine whether to activate the site emergency management plan

### 4.10 Site Emergency Management Plan

The ability of the project workforce and visitors to take prompt and appropriate action in the event of an emergency is essential to their safety and wellbeing. The responses to emergencies will vary with the type of emergency, activities in progress, and site status. All emergency response actions are required to be thoroughly coordinated with the project, the Hanford Emergency Preparedness Organization, and local agencies. The WTP *Site Emergency Management Plan* (BNI 2001) will provide guidance for personnel actions during an emergency. This plan applies to all personnel during construction.

### 4.11 Lockout/Tagout Program

The lockout/tagout program is intended to ensure that employees can work on equipment without being injured or killed by the equipment being activated before the work is completed. Personnel will be protected from inadvertent startup or release of stored energy by the use of locks, holdbacks, valves, and blind flanges, as necessary. Only where the use of a physical restraint such as a lock or lockable device is impossible will a tag be used without such a locking device. To ensure smooth interface with other Hanford contractors and to remain consistent between WTP employees and subcontractors, the WTP will adopt DOE-RL-SOD-INST-L&T.001 and will develop a site-specific procedure, as required. The DOE document and the WTP procedure will be issued, and all subcontractors and their lower-tier subcontractors will be contractually required to use them.

### 4.12 Fall Prevention Program

Falls account for approximately 30 percent of all construction deaths, and the WTP management is committed to eliminating any injuries from falls. Because the first line of defense in this area is fall prevention, a hazard analysis of new work sites will be conducted before beginning work, and where possible the identified fall hazard will be mitigated by engineering controls. When that is not possible, the employees will use personal fall protection. To that end, the project has instituted a 100 percent fall protection rule for exposures of six feet or more or at any height where there is a risk of impalement.

### 4.13 Fitness for Duty Testing and Awareness

The WTP project will conduct fitness-for-duty screening according to the local collective bargaining agreement. The site will also include drug and alcohol abuse awareness as a recurring topic during the weekly safety meetings.

# 5 Environmental, Safety, and Health Training

Knowledge and motivation are essential to safe work habits that reduce the occurrence of job-related injuries. The project is committed to providing the training necessary to enable workers to perform efficiently and safely.

ES&H training for workers will be accomplished through a number of programs, including the Smart Mark training received by workers before they arrive at the work site, new employee site-specific training, and topic-specific safety training. Employees will be assigned to specific training based on their background, previous training, and job assignment.

All training records will show who attended the training session by name and social security number, the topics covered, the time spent on the training, and any other pertinent data. The training record documentation will be maintained by project document control.

## 5.1 Smart Mark Training

Smart Mark is a hazard recognition course recognized by OSHA as satisfying the requirements for OSHA's 10-hour Hazard Recognition course. The course was developed by the Building and Construction Trades, with assistance from OSHA. Construction workers will receive this training before working on the site.

## 5.2 Hanford General Employee Training

Before reporting to the construction site, all workers will receive the Hanford general employee training (HGET), which will familiarize them with Hanford-specific rules and regulations. This training is computer-based to allow employees to progress at their own pace and does not let them advance to the next section until they pass a test of the material covered.

## 5.3 New Employee Site Safety Orientation

All construction site workers, including subcontractors and their lower-tier subcontractor employees, and site visitors will receive project-specific training. Site workers will be provided with the appropriate level of safety training based on their job responsibilities. Site visitors will receive site orientation, which is covered in section 5.4, Visitor Briefing. All site workers will receive training on the following topics:

- Project management commitment to safety and the zero accident philosophy
- Project expectations
- Job-site work rules
- Disciplinary program
- The requirements of the safety and health plan
- Employee responsibilities under the safety and health plan, and applicable federal and state requirements
- Employee safety programs such as STARRT, BBSP, and JHA
- Emergency action plan, including how to report an emergency
- Accident prevention involvement and reporting of all incidents, including near-misses
- Lessons learned
- Onsite medical facilities
- Workers' compensation
- Safe work permitting processes
- Vehicle and equipment safety
- Proper lifting techniques
- Personal protective equipment
- Fall protection and prevention
- Ladder and scaffolding safety
- Housekeeping
- Fire prevention plan
- Hazard communication

- Environmental requirements
- Signs, barricades, and flagging
- Electrical safety, including lockout/tagout
- Rigging and crane requirements
- Confined space requirements
- Excavation, trenching, and shoring
- Hazards of substance abuse

Depending on the employee's duties, employees may receive enhanced training including, but not limited to, fall prevention and protection, respiratory protection, and lockout/tagout.

## 5.4 Visitor Briefings

The project is responsible for the safety and health of all persons at the construction sites, including visitors. Site visitors are defined as people who are at the site for up to seven days on a single visit. If visitors need to exceed this time frame or visit more than once, they may be required to obtain a Hanford Site security badge even if they have been away from the site for a number of months. Note that a US citizen can obtain a visitor's badge with only a few days' prior notification to the training department, but a foreign national from a non-sensitive country may take up to two weeks to receive permission to enter the site. Foreign nationals from a sensitive country may take as long as four months to receive permission to enter the site. For a list of sensitive countries, consult the WTP training department.

Before being allowed on the construction site, the visitor will be briefed on:

- General project safety requirements and rules
- Safety requirements specific to the area to be visited
- Emergency response and evacuation procedures
- Use of personal protective equipment provided

Note: All site visitors will be escorted by a member of the project team who is qualified to access all areas of the site that the visitor wishes to observe. All visitors will be signed in and out of the site to maintain accountability.

All site visitors will be issued a pair of safety glasses, a hard hat, and any other appropriate personal protective equipment (PPE) to enter the construction area. Visitors who cannot or will not comply with the personal protective equipment requirements of the site, including footgear, will be denied access to the site. Coverall safety glasses will be issued to visitors who wear prescription glasses that do not meet the requirements of the standard. The visitors will also be required to wear appropriate construction attire to enter the site.

## 5.5 Safety Reminders

The project will provide employees with safety reminders in a number of ways outside of the weekly toolbox safety meetings:

- Safety metrics conspicuously posted in the work area
- Bulletin board containing safety messages, emergency procedures, and other information

- Signs posted around the site
- Safety articles in newsletters
- Safety awards and incentives

### 5.6 Safety and Health Information

The project will provide employees with safety and health information. This can be done in a number of ways, such as distributing appropriate brochures or newsletters or sponsoring "brown bag" lunchtime seminars. Topics may include, but are not limited to:

- Off-the-job safety
- Alcohol and drug abuse
- Vehicle safety
- Diet and nutrition
- Exercise and fitness

### 5.7 Hazardous Waste Operations and Emergency Response

Hazardous waste operations and emergency response training and certification may be required when the project is ready for cold startup of the facility.

# 6 Safety Inspections, Oversight, and Reporting

### 6.1 Industrial Safety and Health Overview and Surveillance

The S&HRs will conduct daily impromptu surveillance of all project and subcontractor activities to ensure that safety and health guidelines are being implemented properly. In addition, any reports from employees concerning unsafe work practices, acts, or conditions will be investigated promptly. Unsafe acts, practices, or conditions will be reported to the responsible supervisor at the time of the inspection. Whenever practical, violations of the IS&H program requirements, standards, or regulations will be corrected immediately. As required, a Stop Work order can be issued. S&HRs will prepare deficiency reports where trends or significant violations occur and will send a formal copy of the report and recommended corrective action to the responsible manager. A subcontractor's deficiency will result in an immediate verbal report to the subcontractor's manager, followed by a written report within 24 hours. IS&H management will also verbally notify and copy the report to the subcontractor's authorized representative.

IS&H personnel overview and surveillance of project activities will include, but not be limited to:

- Spot checks of construction activities, housekeeping, work practices, documentation (such as STARRT cards), conditions of equipment and work areas, and compliance with established safety policy
- Formal surveillance as required by the IS&H or the ES&H manager

## 6.2 Occupational Illness and Injury Reporting

The ES&H manager is responsible for administering any required recordkeeping and reporting requirements. Examples of these records are the OSHA 200 log and the first reports of injury. Reporting of injuries or illness to DOE and OSHA shall be made by the project management, in accordance with contract requirements.

## 6.3 Equipment and Tool Inspection Program

The equipment and tool inspection program will be administered by the construction department. Examples of equipment to be inspected include, but are not limited to, daily documented inspections of heavy equipment, pneumatic equipment for seals and safety clips or retainers, and rigging and lifting equipment for wear and tear.

The program will include methods for verifying that guards, switches, and lock devices are functioning properly. The program will also include methods to ensure that power sources (electrical, pneumatic, hydraulic) for the equipment and tools are appropriately isolated from the worker, and that power and lifting equipment is structurally sound to perform its intended use. Examples of tool inspection subjects include, but are not limited to:

- Electrical cords on power tools
- Proper color coding for the assured grounding checks
- Qualifications of individuals to operate tools such as powder actuated tools
- Broken or cracked handles on hand tools

When equipment or tools are found to be defective, they shall be tagged as “do not use” and placed in an area where they cannot accidentally be removed and used. Equipment and tools that cannot be repaired are to be tagged and removed from the construction site immediately, or destroyed in such a way as to preclude their use (such as cutting of rigging equipment, or removal of the electrical plug).

The equipment and tool inspection program will be implemented before start of construction.

## 6.4 DOE Inspection and Investigation

If a DOE inspection occurs at the WTP, all rights of access and communications with employees will be granted as specified in RL/REG-2000-04. The DOE inspector or inspectors will be allowed onsite after presenting their credentials and then meeting with the Construction Manager and the IS&H Manager. If any subcontractors are involved, they will also attend the meetings.

The normal procedure is to have an opening conference at which the scope of the inspection is defined. The inspector will then inspect the areas of interest, interview employees, and collect information. An WTP representative, usually the IS&H Manager or a S&HR, will escort the inspector at all times, except when the inspector is conducting confidential interviews with employees. The WTP representative will duplicate any photographs taken by the inspector. After the inspection, a closing conference will be held to discuss the findings.

# 7 Incident Investigation

The purpose of investigating incidents is to improve and enhance the safety and health of the personnel on the WTP site by preventing the recurrence of incidents and accidents, and reducing their frequency and severity. WTP management is committed to investigating all significant near-misses, recordable cases, and lost time accidents and reporting the incident as required. This effort is intended to identify causative factors and provide guidance for corrective actions.

Investigations will be conducted using a team selected by the IS&H Manager and at a minimum will consist of a representative from ES&H, line management, and the craft. A trained safety observer is also recommended, and additional personnel can be added depending on the severity of the incident. The team will:

- Conduct interviews of witnesses and the person or people involved
- Collect information such as photographs, training and maintenance records
- Determine direct, contributing, and root causes for the incident
- Determine corrective actions
- Write the report to be presented to project and construction management

After the causative action or actions have been determined, they will be discussed with the project personnel at safety meetings and incorporated into the new worker site orientation and lessons learned.

# 8 Industrial Hygiene

Industrial hygiene involves recognizing, evaluating and controlling of workplace stressors that can result in illness or a health hazard to the employees. The industrial hygiene component of this program will use sampling and monitoring of the workplace to evaluate potential exposures to dusts, noise, chemicals, and other stresses, in additional to investigating any physiological responses reported by the employees. Historical data and experiences on prior jobs will be considered when identifying potential hazard situations. When hazards are identified, they will be controlled according to the following hierarchy: engineering controls, administrative controls, and then use of PPE.

## 8.1 Monitoring Strategy

Sampling and monitoring will initially be performed to evaluate potential industrial hygiene hazards based on historical information and evaluation by the industrial hygiene professional. Direct reading instruments can be used in conjunction with the collection of samples for laboratory analysis. Dosimeters will also be used as appropriate, depending on the analytical methodology selected.

The National Institute of Occupational Safety and Health (NIOSH) methodology and a laboratory accredited by the American Industrial Hygiene Association will be used whenever possible to promote consistency and uniformity of data. When NIOSH methodology has not been prescribed, Department of the Army, Department of Defense, or other nationally-recognized protocols will be used for collecting and analyzing samples. Sampling will also be performed according to the directions of the IS&H Manager.

## 8.2 Health Hazard Inventory

Health hazards confirmed by sampling, monitoring, or other industrial hygiene evaluation techniques will be documented. A list of potential industrial hygiene concerns will be developed and used to plan monitoring and sampling campaigns. The list could include airborne materials in the form of dusts, fibers, particles, fumes, aerosols, mists, vapors, or gases. Thermal stress, noise, vibration, dermatitis, ergonomic factors, and biological exposures are also to be considered in developing the inventory.

## 8.3 Health Hazard Communication

Health hazards and industrial hygiene concerns will be communicated to the work force. Potential hazards of general interest and application will be routinely reported to the employees as part of the general hazard communication program. As new hazards are identified, the employees in the affected jobs will be informed of the potential hazard and the appropriate action that they should take to mitigate it. The new hazard will also be included in the site orientation. Task-specific hazard mitigation will be included in the pre-task briefings.

## 8.4 Employee Access to Records

Results from the employee monitoring will be verbally reported to employees as soon as practical after the results have been reviewed. Employees are permitted to receive copies of their medical or exposure records by submitting a request for this information. Copies of the records or exposure data will be provided within 15 days of receipt of a properly-executed request in writing. Records requested will be provided to the person or people designated, unless the project medical personnel believe that medical explanation of the data is necessary, in which case the data will be released only to a physician designated by the employee. The exception to this policy is the OSHA regulations that require the employer to provide the employee with a copy of the monitoring results, such as the lead standard.

## 8.5 Personal Protective Equipment

PPE, other than construction attire, will be used for employee protection when engineering or administrative control of a hazard is not feasible or until engineering or administrative control can be implemented. Personnel will be trained in the proper use, inspection, care, and cleaning of PPE.

## 8.6 Noise Control and Hearing Conservation

Noise exposure is expected to be a major stress at the job site and will be evaluated in accordance with 29 CFR 1910.95 using standard measuring techniques. Employees whose noise exposures exceed the permissible levels shall be medically evaluated, as required in the OSHA standard. Areas or equipment where noise levels exceed 80 decibels on the A-weighted scale (dBA) will be posted with signs noting the noise level and the need for use of hearing protection. Special consideration shall be given to people operating vehicles or mobile equipment, or present in loud noise areas, if the protection will impair recognition of warning horns or alarms. In these circumstances, safety and health personnel will devise means to protect the worker from loud noises while maintaining an adequate warning system.

Employees whose noise exposure equals or exceeds the 50 percent dose level will be placed into the hearing conservation program, where they will receive annual training on hearing conservation techniques and the proper use of hearing protection devices.

### 8.7 Respiratory Protection

Respiratory protection will be used to provide worker protection when engineering or administrative controls are not feasible or until they can be implemented. Voluntary use of filtering face-piece devices will be permitted when there is no exposure at or above action levels. Only NIOSH-approved devices will be used on the project.

### 8.8 Sanitation

All areas where coolers are filled or cleaned will be kept in a sanitary condition. Tools such as brushes used for cleaning will always be placed in a closed container when they are not being used. Workers disinfecting coolers shall wear appropriate PPE to prevent splashes to the eyes or contact with liquids that could cause dermatitis. Coolers containing water will be cleaned and disinfected every other day, and coolers containing electrolyte solutions will be cleaned and disinfected every day.

Because everyone uses the coolers, sanitation is important. All regulations required by OSHA shall be met (that is, there shall be no mouth contact with the spigot, and cups shall be kept in a closed container).

Ice machines doors shall be locked when unattended. Ice shall be touched only by a scoop, not the employee's hands.

# 9 Project Procedures

The WTP shall follow the regulations promulgated in the OSHA regulations found in 29 CFR Part 1926, and project requirements specified in RL/REG 2000-04. These regulations and requirements, as applicable to the project, will be incorporated into controlled documents in the form of procedures or programs. Any revision to controlled procedures or program will require review by IS&H staff members and authorization by the IS&H Manager.

In addition to these controlled procedures and programs, IS&H policies and desk-top guides will be used to perform work on the WTP. However, these guides will be managed in a less formal manner than the project's published programs and procedures and are not intended for external distribution.

# 10 References

29 CFR 1910 Subpart Z. "Toxic and Hazardous Substances", *Code of Federal Regulations.*

29 CFR 1926. "Safety and Health Regulations for Construction", *Code of Federal Regulations*

BNI. 2001. *Site Emergency Management Plan*, K90P017. Bechtel National Inc., Richland, Washington, USA

DOE. 2000. *Industrial Hygiene and Safety Regulatory Plan*, RL/REG-2000-04. US Department of Energy, Richland, Washington, USA.

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Ecology and others. 1989. *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement), 89-10, as amended. Washington State Department of Ecology, Olympia, Washington, USA; US Environmental Protection Agency, Washington, DC, USA; and US Department of Energy, Washington, DC, USA.

OSHA. 1970. *Occupational Safety and Health Act* of 1970

**Figure 1 Lines of Responsibility for the Safety and Health Plan**